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(54) DEVICE AND METHOD TO REDUCE CATALYTIC NOX IN ENGINE EXHAUST GAS CONTAINING OXYGEN

(57) Abstract:

PROBLEM TO BE SOLVED: To expand NOX converting operation to a specific temperature range, and enhance temperature stability of a catalytic system by additionally charging NOX reducing activity on a flow mixer and an evaporator constituted as a hydrolytic catalyst.

SOLUTION: Catalytic reaction activity of NOX is enhanced to NH_3 by partial catalytic oxidation of NO to NO_2 in a preliminary catalyst 3 arranged in front of supply devices 9 and 10 for urea in the flowing direction. An Al_2O_3-supported platinum catalyst having a Pt load abundantly is used as an NO oxidizing catalyst, and this catalyst is connected to the front end in front of a reducing catalyst 7. Remarkable NOX reducing activity is formed by adding NOX on which NO content is enhanced by about 50% by an oxidizing catalyst to which a urea evaporator device 6 whose surface is coated with a mixture composed of V_2O_5 free oxide is connected to the front end. A result of a model gas experiment shows high NOX reducing activity at a temperature lower than about 300°C and higher than 500°C as compared with a conventional technology.